

# BUILDING ENERGY CODES

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



Building Energy Codes -  
A Significant Tool for Tribal Building  
Energy Efficiency

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# Codes are Tools

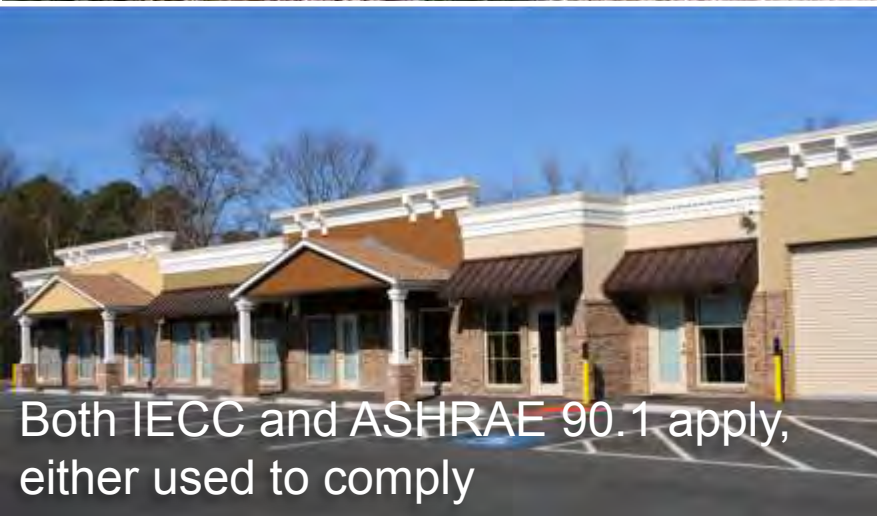
- Building energy efficiency
- Sustainability
- Set standards for local development
- Set standards for outside agencies



# Baseline Energy Codes and Green Building – Applications



The IECC Applies



Both IECC and ASHRAE 90.1 apply,  
either used to comply



# Baseline Energy Codes Affect Building Design and Construction

- Wall, floor, ceiling
- Doors, windows
- Heating, ventilating, and cooling systems and equipment
- Lighting systems and equipment
- Water-heating systems and equipment





The energy code specifies the insulation levels in the floor, ceiling, and walls as well as requirements intended to seal the building against air leakage and moisture migration.





Energy codes provide  
**criteria for the  
size and efficiency of HVAC  
systems and equipment.**

*The energy codes provide minimum criteria to support **efficient, effective lighting.***

*Also lighting controls in commercial space.*







Energy codes provide  
minimum criteria to  
**effectively heat and  
deliver hot water.**



# Energy Efficient Does Not Mean Costly

## Yavapai College/Habitat for Humanity, Prescott, Arizona

This affordable dwelling is 43% above the 2006 IECC.

The home was awarded the 2007 Energy Value Housing, Gold Award by the National Association of Home Builders, in partnership with National Renewable Energy Laboratory and the U.S. Department of Energy's Building America Program in 2007.



# Energy Efficient Can Happen Anywhere

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*Yukon Kuskokwim Health Corporation, Community Health Building, Bethel, AK  
ASHRAE Advanced Energy Design Guide for Small Office Buildings, 2004*



# Beyond Energy – Green Building Codes

- Site Selection
- Landscaping
- Water Conservation
- Energy Conservation
- Materials and Resources
- Indoor Environmental Quality
- Operation and Maintenance

U.S. DEPARTMENT OF  
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### Green Building Codes

Our cross-cutting team offers experience ranging from energy to wastewater and all sections of green building programs in between.

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#### Planning for a New Program — Your Community

The past several years have seen tremendous growth in green programs and sustainable development across the country. States and jurisdictions are addressing the challenges of constrained resources and concerns for the climate by developing and adopting sustainability plans and **Green Building Codes** and programs.

#### Green Building Codes and Programs

The objectives of **Green Building Codes** are not new, but their packaging and metrics are. In the 1970s and into the 1980s, communities addressed water conservation, recycling, and energy conservation in a variety of ways. Energy efficiency was commonly viewed as a function of not just the building, but also its siting, orientation, shading, and the general neighborhood layout.

Today, the growth in green building programs is substantial.

#### Energy Codes — Efficient and Sustainable Use

Energy codes have resulted in transformational changes in building energy consumption, and the benefits of these changes include reductions in energy consumption, costs, and CO<sub>2</sub> emissions. The results of these efforts are significant. **Green Building Codes** go beyond the energy codes, raising the bar for energy efficiency, initially serving as a proving ground; green building programs eventually make transformative efficiency improvements in the residential and commercial building marketplace.



#### Site Sustainability — An Essential First Step

Site selection will determine access to public transportation, parks and recreation, bike paths and walkways, and whether environmentally sensitive areas are avoided. Site sustainability is a major consideration in planning.

#### Water and Wastewater

Water use efficiency and conservation can be addressed via multiple approaches and offers tremendous potential. For instance, a typical LEED® aquatic foot-office building can reduce indoor water use by 30% using low-flow fixtures with sensors and automatic controls.

## Tools to Provide

- Protection for east, west, and southern entrances from southern sun
- Water efficient landscaping
- Solar orientation
- Shaded outdoor living area

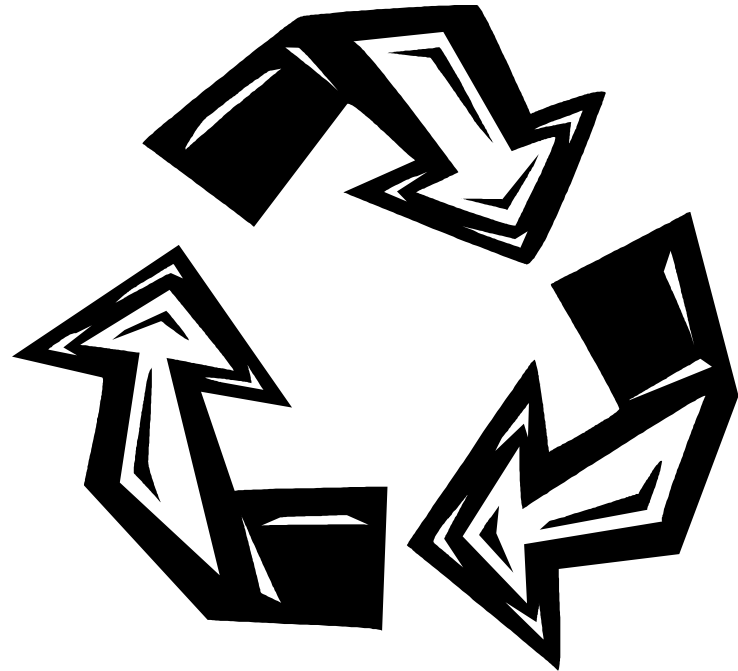




## Potential options include:

- Building water use reduction
  - Plumbing
  - Appliances
  - Fixtures
- Landscaping
  - Use drought tolerant, native, and regionally appropriate landscaping
  - Use high-efficiency automatic irrigation
- Rainwater channeling and/or harvesting
- Wastewater technology

- Reduce
- Reuse
- Recycle





## Areas to Consider:

- Minimize potential pollutants
- Manage potential pollutants
- Plan for ventilation of cooking areas
- Address proper installation, operation of wood burning stoves



- **Stakeholder** involvement in the decision making process
  - reflecting the **vision** of the Tribe
- **Established goals** – what are the goals?
- Implementation, integration and **staffing**
  - How to make this work within the existing infrastructure
- **Incentives, Communication, Partnerships, and Education**



Stakeholders – Navajotimes.com

- Local Education
- Local Expertise
- Local Jobs





- Local or Regional?
- Share resources with outside jurisdictions or an MOA with other Nations/Tribes?
- Do the IECC or ASHRAE 90.1 have what you need?
- Adapt or modify to make it apply?
- Should Tribes be get more involved in the development process?
- Voluntary or Mandatory?
- Just an energy code or a sustainability code?

# No Cost Resources are Available

*Additional resources, including:*

- *Code Notes*
- *Technical Assistance to Users*
- *Energy Codes 101*
- *Setting the Standard*
- *Training Materials*
- *Resource Center*
- *Resource Guides*

*Are available through the  
Building Energy Codes Program*

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# Messages to Take Away from Today

- Resources are available today
  - No cost
  - [www.energycodes.gov](http://www.energycodes.gov)
- Start the conversation
  - Show value
  - Build the relationship
  - Start to build trust



# Messages to Take Away from Today

- Be good to people
- Be good to the land
- Be good to the business
  - Deliver/get results

**Good things can happen**

# Thanks!

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